

# **Azimuthal Asymmetries in Meson Productions in Electron-Nucleon Deep-Inelastic Scattering by HERMES**

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The measurement of single-spin azimuthal asymmetries for pseudoscalar meson production in semi-inclusive deep-inelastic scattering of 27.6 GeV electrons off a longitudinally polarised hydrogen and deuterium target is reported by the HERMES experiment. A significant target-spin asymmetry amplitude in the azimuthal distribution of charged and neutral pions and positively charged kaons relative to the lepton scattering plane has been observed. The dependence on the relevant kinematic variables which are the Bjorken variable  $x$ , the meson fractional energy  $z$ , and the meson transverse momentum  $P_{\perp}$  has been investigated as well. The results are compared to predictions of model calculations which base on a fragmentation function that represents sensitivity to the transverse polarisation of the struck quark.

Furthermore, the measurement of a single beam-spin azimuthal asymmetry in the electro-production of positive pions in semi-inclusive and semi-exclusive deep-inelastic scattering will be presented.